Remote sensing of forest cover and change assessment for carbon monitoring
NASA ARSET/SilvaCarbon Webinar Series
June 9 – July 7, 2016

Date: Five 1.5-hour sessions held every Thursday 1:00 – 2:30PM EDT and 10:00-11:30PM EDT (-04:00 UTC) from June 9 – July 7, 2016. Each week there will be two sessions. Please only sign up for and attend one of the session times based on what is most appropriate for your location.

Course Description: In this introductory webinar, participants will be provided with an overview of carbon monitoring for terrestrial systems. This will include background information about the Intergovernmental Panel on Climate Change (IPCC), Greenhouse Gas (GHG) inventories, the United Nations Framework Convention on Climate Change (UNFCCC), and development of the Reducing Emissions from Deforestation and Degradation (REDD+) program. This course will review products from Landsat, MODIS, and Sentinel, and other sensors commonly used for land management applications. This course will provide information about carbon estimation techniques, and conducting accuracy assessments on these estimates. This course will also provide live demonstrations of tools for carbon monitoring such as NASA's Carbon Mapper. Finally, guidance on reporting, future perspectives, and the larger role of carbon markets will be discussed as well as additional guidance resources available to participants. There will be homework for participants to complete each week; this is required for a certificate of completion.

Learning Objectives: Participants will learn how to acquire and use remotely-sensed imagery for carbon monitoring and estimation including:
- A basic understanding of carbon monitoring and the global importance
- Acquiring remotely-sensed imagery and products for carbon monitoring
- Techniques for estimating carbon
- Developing accuracy assessments
- Reporting and verifying carbon estimates

Intended audience: Local, regional, state, federal, and international organizations interested in assessing and reporting carbon estimates using satellite imagery. Governmental and Non-governmental organizations in the public and private sectors engaged in environmental management and monitoring will be given preference over organizations focused primarily on research.

Pre-requisite: Complete the on-demand "Fundamentals of Remote Sensing" webinars, Sessions 1 and 2 (http://arset.gsfc.nasa.gov/webinars/fundamentals-remote-sensing) or equivalent experience.

Certificate: A certificate will be provided to participants who attend all five webinars AND complete all five homework assignments by the due date.

Session 1 (June 9): Overview of carbon monitoring for terrestrial ecosystems
- Introduction to carbon monitoring in terrestrial ecosystems
- Policy background on carbon monitoring including the Intergovernmental Panel for Climate Change (IPCC),the United Nations Framework on Climate Change (UNFCCC), and the role of Intended Nationally Determined Contributions (INDCs)
- The importance of forest monitoring
  - IPCC Greenhouse Gas inventories
  - Reducing Emissions from Deforestation and Forest Degradation (REDD+)
- Performing a Key Category Analysis (KCA) to identify major emission sources
- Elements of National Forest Monitoring Systems (NFMSs)

Session 2 (June 16): Sensors and products available for terrestrial ecosystems
- Remote sensing data sources
- Pre-processing requirements
- Image classification and change detection
- Existing carbon monitoring products
- Live Demo of NASA's Carbon Mapper
- Considerations for NFMS sustainability

Session 3 (June 23): Carbon estimation techniques/methods
- Designing a field campaign to collect carbon pool information
- Ground data collection and use for estimating change in carbon pools
- Use of remote sensing information in support of National Forest Inventory (NFI)
- Deriving carbon emissions

Session 4 (June 30): Accuracy Assessment
- Developing an accuracy assessment
- Calculation of accuracy statistics
- Live Demo of the Boston Education in Earth Observation Data Analysis (BEEODA) tools

Session 5 (July 7): Guidance, Reporting, and Verification
- Guidance resources for carbon reporting
  - Methods and Guidance Documentation (MGD)
  - REDDCompass
  - GOFC-GOLD SourceBook
- Reporting and future perspectives
  - Role of carbon markets
  - Carbon emissions reporting from the forest sector